

WHAT IS CLAIMED IS:

1 1. An interventional tool for repairing a cardiac valve of a patient having
2 leaflets, said tool comprising:

3 a capture device having a shaft, a proximal portion and a distal portion adapted
4 for placement through vasculature of the patient to a location near the cardiac valve, the
5 capture device comprising at least one deployable distal element and at least one deployable
6 proximal element adapted to capture the valve leaflets between the elements,

7 wherein the at least one distal element is deployable and retractable
8 independently of the at least one proximal element in an outward direction from the shaft.

1 2. A device as in claim 1, wherein the at least one distal element is
2 deployable by advancement outwardly from the shaft.

1 3. A device as in claim 2, wherein the at least one distal element has a
2 length extending from the shaft to a tip of the at least one distal element, wherein the length is
3 adjustable by deployment of the at least one distal element.

1 4. A device as in claim 1, wherein the at least one distal element is
2 deployable by angular movement of the at least one distal element so that the at least one
3 distal element forms an angle with the shaft.

1 5. A device as in claim 1, wherein the at least one proximal element is
2 deployable by angular movement of the at least one proximal element so that the at least one
3 proximal element forms an angle with the shaft.

1 6. A device as in claim 1, wherein the at least one proximal and at least
2 one distal element atraumatically capture the valve leaflets.

1 7. A device as in claim 6, wherein the at least one distal element and/or
2 the at least one proximal element further include a frictional accessory.

1 8. A device as in claim 1, wherein the at least one proximal element
2 and/or the at least one distal element is adapted to be adjusted angularly after capturing the
3 valve leaflets to adjust the position of the leaflets.

1 9. A device as in claim 1, wherein the distal portion comprises two distal
2 elements disposed on opposite sides of the shaft.

1 10. A device as in claim 9, wherein the two distal elements are
2 simultaneously deployable.

1 11. A device as in claim 1, wherein the proximal element comprises two
2 proximal elements disposed on opposite sides of the shaft.

1 12. A device as in claim 11, wherein the two proximal elements are
2 simultaneously deployable.

1 13. A device as in claim 1, wherein the at least one proximal element
2 and/or the at least one distal element has a loop shape when deployed.

1 14. A device as in claim 1, wherein the at least one proximal element
2 and/or the at least one distal element is comprised of stainless steel, metals, nitinol, shape-
3 memory alloy, polymer, silk, polyester, nylon or a combination of these.

1 15. A device as in claim 1, wherein the at least one distal element and the
2 at least one proximal element are adapted to fixedly hold the leaflets as captured.

1 16. A device as in claim 15, wherein the capture device is detachable from
2 the interventional tool.

1 17. A device as in claim 1, wherein the at least one proximal element is
2 configured to be disposed within the edges of the corresponding at least one distal element
3 when both the at least one proximal element and corresponding at least one distal element are
4 in a deployed position.

1 18. A method of repairing a cardiac valve of a patient having leaflets, said
2 method comprising:

3 providing an interventional tool including
4 a capture device having a shaft, a proximal portion and a distal portion
5 adapted for placement through vasculature of the patient to a location near the cardiac valve,
6 the capture device comprising at least one deployable distal element and at least one
7 deployable proximal element adapted to capture the valve leaflets between the elements,

8 wherein the at least one distal element is deployable and retractable
9 independently of the at least one proximal element in an outward direction from the shaft;
10 advancing the distal portion through the vasculature to the location near the
11 cardiac valve; and
12 deploying the at least one distal element and the at least one proximal element
13 independently of each other so that the valve leaflets are captured therebetween.

1 19. A method as in claim 18, wherein deploying step comprises advancing
2 the at least one distal element or the at least one proximal element outwardly from the shaft.

1 20. A method as in claim 19, wherein the at least one distal element has a
2 length extending from the shaft to a tip of the at least one distal element, and wherein
3 deployment of the at least one distal element adjusts the length.

1 21. A method as in claim 18, wherein the deploying step comprises
2 angularly moving the at least one distal element and/or the at least one proximal element is so
3 that the at least one distal element and/or the at least one proximal element forms an angle
4 with the shaft.

1 22. A method as in claim 18, further comprising angularly adjusting the at
2 least one proximal element and/or the at least one distal element after capturing the valve
3 leaflets to adjust the position of the leaflets.

1 23. A method as in claim 18, wherein deploying the at least one distal
2 element comprises deploying two distal elements wherein each distal element is disposed on
3 opposite sides of the shaft.

1 24. A method as in claim 23, wherein deploying the two distal elements
2 comprises simultaneously deploying the two distal elements.

1 25. A method as in claim 18, wherein deploying the at least one proximal
2 element comprises deploying two proximal elements wherein each proximal element is
3 disposed on opposite sides of the shaft.

1 26. A method as in claim 25, wherein deploying the two proximal
2 elements comprises simultaneously deploying the two proximal elements.

1 27. A method as in claim 18, further comprising retracting the at least one
2 distal element and/or the at least one proximal element.

1 28. A method as in claim 27, further comprising repositioning the capture
2 device in relation to the leaflets and redeploying the at least one distal element and the at least
3 one proximal element so that the valve leaflets are captured therebetween.

1 29. A method as in claim 18, further comprising evaluating the cardiac
2 valve for regurgitation while the leaflets are captured.

1 30. A method as in claim 18, further comprising fixing the captured
2 leaflets in place.

1 31. A method as in claim 30, further comprising detaching the capture
2 device from the interventional tool.

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